

ALSTOM

Air Preheater Company
17752 Skypark Circle, Suite 120
Irvine, CA 92614 USA

August 2, 2002

Intermountain Power Project
Lynnndyl, Units 1, 2, 3, 4
Attn: **Mr. Bret Kent**

Fax: 435-864-6670 [4 pages, including cover]

File: ClearFlow™ Primary/Secondary Air Preheaters

Dear Bret,

Attached are the Performance Guarantees you requested for both the primary and secondary air preheaters. These guarantees contain liquidated damages for failure to meet the specified performance tolerance. Also attached is a Reference List of ClearFlow™ and Duplex™ Upgrades. There are 30 customers listed with over 200 air preheaters that have been converted. The majority of these are coal fired. We have been upgrading conventional air preheaters to the ClearFlow™ design since 1995. This upgrade has been a tremendous success.

Very Best Regards,
Alstom Power Inc.
Air Preheater Company



Gary Allen
Regional Manager

IP7_034137

AIR PREHEATER COMPANY

Bisector Performance Guarantee

**Quote #1CS1535
Intermountain Power
Lynndyl Station
Units #1 & #2
LAP-4097/4099**

**2-24.5-VI Ljungstrom® Primary Air Preheaters per unit
Duplex™ Option**

Seller guarantees, if the heat transfer surface is installed in accordance with the plans and specifications and under the direct supervision of the Air Preheater Company Technical Services Representative, and provided that any components being replaced and all heating elements are of Air Preheater Company supply, and provided that any components not being replaced and the structure of the air preheaters are in commercially clean and sound condition, and provided uniform air and gas flow distributions, that when delivering 849,610 pounds of air per hour at an entering temperature of 82°F, the air preheaters will reduce the temperature of 923,172 pounds of gas per hour from an entering temperature of 752°F, to an average exit temperature without leakage of 303°F, $\pm 8^\circ\text{F}$, based on firing coal with a specific heat ratio of 0.9250, with an average air side pressure loss not more than 1.25 inches W.G. and an average gas side pressure loss not more than 1.90 inches W.G. (based on a site elevation of 4700 ft. above sea level).

All other performance data listed in this proposal or any contract resulting from this proposal is our estimate of expected performance and is not guaranteed. The seller's liability under this guarantee shall be limited to, at the seller's option, the necessary repairs, replacements, or modifications to permit such performance, or in lieu thereof, may pay the purchaser as liquidated damages in full satisfaction of the inability to meet this Performance Guarantee an amount equal to the lessor of \$5,000 per °F above the guarantee tolerance ($303^\circ\text{F} + 8^\circ\text{F} = 311^\circ\text{F}$), plus 1% of the purchase price of the heating elements for each full inch W.G. that the air or gas side pressure drops are above the guarantee value, or 10% of the purchase price of the heating elements, excluding freight.

To establish non-compliance with this guarantee, the purchaser shall at their expense conduct testing procedures in full compliance with the Air Heater Test Code, ASME PTC-4.3, under the co-supervision of designated representatives of the seller and of the purchaser, within sixty (60) days after date of initial operation.

THE EXPRESS WARRANTIES, GUARANTEES, AND REMEDIES SET FORTH IN THIS PROPOSAL, OR ANY CONTRACT RESULTING FROM THIS PROPOSAL, ARE EXCLUSIVE, AND NO OTHER WARRANTIES, GUARANTEES, OR REMEDIES OF ANY KIND, WHETHER STATUTORY, WRITTEN, ORAL, EXPRESS, OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY, SHALL APPLY. THE PURCHASER'S EXCLUSIVE REMEDY AND THE SELLER'S SOLE OBLIGATION, AFTER ACCEPTANCE OF THE EQUIPMENT, SHALL BE THOSE STATED HEREIN.

Element Configuration
DL7™/22/44"

7-30-02

IP7_034138

AIR PREHEATER COMPANY

Bisector Performance Guarantee

Quote #2CS0888
Intermountain Power
Lynndyl Station
LAP-4098

2-33.5-VI Ljungstrom®

Seller guarantees, if the heat transfer surface is installed in accordance with the plans and specifications and under the direct supervision of the Air Preheater Company Technical Services Representative, and provided that any components being replaced and all heating elements are of Air Preheater Company supply, and provided that any components not being replaced and the structure of the air preheaters are in commercially clean and sound condition, and provided uniform air and gas flow distributions, that when delivering 5,183,660 pounds of air per hour at an entering temperature of 64°F, the air preheaters will reduce the temperature of 6,285,500 pounds of gas per hour from an entering temperature of 736°F, to an average exit temperature without leakage of 263°F, + or - 8°F, based on firing coal with a specific heat ratio of 0.9250, with an average air side pressure loss not more than 2.80 inches W.G. and an average gas side pressure loss of 4.30 inches W.G., (based on a site elevation of 4700 ft. above sea level).

All other performance data listed in this proposal or any contract resulting from this proposal is our estimate of expected performance and is not guaranteed. The seller's liability under this guarantee shall be limited to, at the seller's option, the necessary repairs, replacements, or modifications to permit such performance, or in lieu thereof, may pay the purchaser as liquidated damages in full satisfaction of the inability to meet this Performance Guarantee an amount equal to the lessor of \$5,000 per °F, above the guarantee tolerance (263°F + 8°F = 271°F), plus 1% of the purchase price of the heating elements for each full inch W.G. that the air or gas side pressure drops are above the guarantee value, or 10% of the purchase price of the heating elements, excluding freight.

To establish non-compliance with this guarantee, the purchaser shall at their expense conduct testing procedures in full compliance with the Air Heater Test Code, ASME PTC-4.3, under the co-supervision of designated representatives of the seller and of the purchaser, within sixty (60) days after date of initial operation.

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Element Configuration

Hot End: DL7™/22/41"

Cold End: DL7™/20/41"

7-30-02

IP7_034139

ALSTOM Power Inc., Air Preheater Company

US Reference List of

ClearFlow™ and Duplex™ Upgrades

On Ljungström® and Rothemühle® Air Preheaters

<u>Customer</u>	<u>Description</u>	<u>APH Qty - Size</u>
Allegheny Power	ClearFlow™ Retrofit	4 - Size 31 VI
Ameren Corp	ClearFlow™ Retrofit	8 - Size 29.5-30.5
AEP	ClearFlow™ Retrofit	28 - Size 23-32 VI
AEIC	New APH's --	2 - Size 34.5 VI
	ClearFlow™ & Duplex™	
Cinergy	ClearFlow™ Retrofit	2 - Size 11.2 VU
	ClearFlow™ Retrofit	4 - Size 22-29 VI
CMS Energy	ClearFlow™ Retrofit	4 - Size 28.5-31 VI
	New APH's -	2 - Size 21.5 VI
	ClearFlow™ & Duplex™	
	ClearFlow™ Retrofit	4 - Size 27 VI
Deseret Generation	ClearFlow™ & Duplex™	2 - Size 32.5 VI
Dominion Resources	New APH's -	7 - Size 28-35 VI
	ClearFlow™ & Duplex™	
DPL, Inc.	ClearFlow™ Retrofit	2 - Size 11.2 VU
	ClearFlow™ Retrofit	8 - Size 32 VI
DTE Energy	ClearFlow™ & Duplex™	8 - Size 34 H
	ClearFlow™ Retrofit	3 - Size 25 VI
East Kentucky Power	ClearFlow™ Retrofit	2 - Size 30 VI
	New APH - ClearFlow™ & Duplex™	1 - Size 32.5 VI
Edison Mission Energy	ClearFlow™ Retrofit	12 - Size 19.5 - 31
First Energy	ClearFlow™ Retrofit	10 - Size 25-32.5 VI
Illinois Power	New APH's -	4 - Size 32.5 VI
	ClearFlow™ & Duplex™	
Iowa Resources	ClearFlow™ Retrofit	3 - Size 30-31 H
KCP&L	ClearFlow™ Retrofit	2 - Size 31.5 H
KP&L	ClearFlow™ Retrofit	8 - Size 21.5-27.5 VI
LG&E Energy	ClearFlow™ Retrofit	10 - Size 27 -30 VI
OPPD	ClearFlow™ Retrofit	4 - Size 22.5-25.5
PG&E	ClearFlow™ Retrofit	2 - Size 28.5
PacifiCorp	ClearFlow™ & Duplex™	2 - Size 32 VI
PP&L Resources	ClearFlow™ Retrofit	2 - Size 28.5
PREPA	ClearFlow™ Retrofit	10 - Size 22.5-28
Reliant Energy	ClearFlow™ & Duplex™	10 - Size 23.5-31.5
Southern Company	ClearFlow™ & Duplex™	21 - Size 22-32 VI
SIGECO	ClearFlow™ Retrofit	2 - Size 28.5
Springfield Utilities	ClearFlow™ Retrofit	4 - Size 19-24
TVA	New APH's -	10 - Size 27.5-29.5 VI
	ClearFlow™ & Duplex™	
Wisconsin Energy	ClearFlow™ Retrofit	2 - Size 28.5

PAH

	Existing	In-Kind	ClearFlow w/ Duplex Sealing	ClearFlow w/ Duplex Sealing & LRS-2k
Fuel Savings:	\$1,377,245	\$1,377,245	\$1,451,468	\$1,451,468
Fan Cost:	-\$52,668	-\$29,318	-\$32,910	-\$29,029
Net Savings:	\$1,324,577	\$1,347,927	\$1,418,558	\$1,422,439
Increased Savings:	-	\$23,350	\$93,981	\$97,862
Installation:	\$0	\$45,850	\$210,560	\$210,560
Materials:	\$0	\$125,000	\$207,200	\$332,200
Total Cost:	\$0	\$170,850	\$417,760	\$542,760
Pay Back [Yrs]:	-	7.32	4.45	5.55

SAH

	Existing	In-Kind	ClearFlow w/ Duplex Sealing
Fuel Savings:	\$9,727,886	\$9,727,886	\$10,382,002
Fan Cost:	-\$597,472	-\$277,439	-\$376,806
Net Savings:	\$9,130,415	\$9,450,447	\$10,005,196
Increased Savings:	-	\$320,033	\$874,782
Installation:	\$0	\$210,560	\$467,600
Materials:	\$0	\$923,700	\$1,153,900
Total Cost:	\$0	\$1,134,260	\$1,621,500
Pay Back [Yrs]:	-	3.54	1.85

1,122,700
 31,200 SEALS
 1,153,900
 + 57,300 TECH REP
 + 12,400 CLEARANCE GUAGE
 1,223,600
 467,600 INSTALL
 1,691,200 TOTAL

Unit 1

	Sec AH 1A		Sec AH 1B		Pri AH 2A		Pri AH 2B	
	Instrument #	PI#	Instrument #	PI#	Instrument #	PI#	Instrument #	PI#
Air Ent. #/Hr	FT-97	1SGBFT0097	FT-98	1SGBFT0098	FT-49	1SGBFT0049	FT-74	1SGBFT0074
Air Lvg. #/Hr	FT-94	1SGBFT0094	FT-95	1SGBFT0095	FT-75-78	1SGBFT0075-78	FT-79,90-92	1SGBFT0079,90-92
Gas Ent. #/Hr								
Gas Lvg. #/Hr								
Air Ent. Deg F	TE-938	1SGBTE0938	TE-940	1SGBTE0940	TE-911	1SGBTE0911	TE-912	1SGBTE0912
Air Lvg. Deg F	TE-919	1SGBTE0919	TE-920	1SGBTE0920	TE-917	1SGBTE0917	TE-918	1SGBTE0918
Gas Ent. Deg F	TE-1650	1SGBTE1650	TE-1650	1SGBTE1650	TE-707	1SGBTE0707	TE-707	1SGBTE0707
Gas Lvg. Deg F	TE-927	1SGBTE0927	TE-929	1SGBTE0929	TE-913	1SGBTE0913	TE-915	1SGBTE0929,15
ACET Deg F		1SGBKV0008		1SGBKV0009		1SGBKV0006		1SGBKV0007
Fan Dschrg P Air "WG	PT-220	1SGBPT-0220	PT-221	1SGBPT-0221	PT-210	1SGBPT-0210	PT-211	1SGBPT-0211
Air Duct Outlet P "WG	PT-256	1SGBPT-0256	PT-257	1SGBPT-0257	PT-213	1SGBPT-0213	PT-212	1SGBPT-0212
Delta P Gas "WG	PT-216	1SGBPT-0216	PT-217	1SGBPT-0217	PT-214	1SGBPT-0214	PT-215	1SGBPT-0215
Hot End Diff. "WG								
Cold End Diff. "WG								

1SGBX10034

Unit 2

	Sec AH 1A		Sec AH 1B		Pri AH 2A		Pri AH 2B	
	Instrument #	PI#	Instrument #	PI#	Instrument #	PI#	Instrument #	PI#
Air Ent. #/Hr	FT-97	2SGBFT0097	FT-98	2SGBFT0098	FT-49	2SGBFT0049	FT-74	2SGBFT0074
Air Lvg. #/Hr	FT-94	2SGBFT0094	FT-95	2SGBFT0095	FT-75-78	2SGBFT0075-78	FT-79,90-92	2SGBFT0079,90-92
Gas Ent. #/Hr								
Gas Lvg. #/Hr								
Air Ent. Deg F	TE-938	2SGBTE0938	TE-940	2SGBTE0940	TE-911	2SGBTE0911	TE-912	2SGBTE0912
Air Lvg. Deg F	TE-919	2SGBTE0919	TE-920	2SGBTE0920	TE-917	2SGBTE0917	TE-918	2SGBTE0918
Gas Ent. Deg F	TE-1650	2SGBTE1650	TE-1650	2SGBTE1650	TE-707	2SGBTE0707	TE-707	2SGBTE0707
Gas Lvg. Deg F	TE-927	2SGBTE0927	TE-929	2SGBTE0929	TE-913	2SGBTE0913	TE-915	2SGBTE0929
ACET Deg F		2SGBKV0008		2SGBKV0009		2SGBKV0006		2SGBKV0007
Fan Dschrg P Air "WG	PT-220	2SGBPT-0220	PT-221	2SGBPT-0221	PT-210	2SGBPT-0210	PT-211	2SGBPT-0211
Air Duct Outlet P "WG	PT-256	2SGBPT-0256	PT-257	2SGBPT-0257	PT-213	2SGBPT-0213	PT-212	2SGBPT-0212
Delta P Gas "WG	PT-216	2SGBPT-0216	PT-217	2SGBPT-0217	PT-214	2SGBPT-0214	PT-215	2SGBPT-0215
Hot End Diff. "WG								
Cold End Diff. "WG								

Lynndyl Unit #2
33.5VIT

Estimated Manhours for Air Preheater Clearflow™ Modifications (1 Air Heater)					
Step	Operation	Number of Shifts¹		Men	
		12	Hrs/Shift	Direct	Support
1	Remove all hot and cold end baskets and hot and cold rotor seals	8		8	3
2	Remove cold end gratings	4		8	3
3	Mark and cut cold end stay plates	3		8	3
4	Clean up areas for rework	1		8	3
5	Layout for new cold end stay plate locations	2		8	3
6	Install new cold end stay plates with basket support bars	4		8	3
7	Re-install cold end rotor covers and sealweld in place	2		8	3
8	Install new cold end baskets	5		8	3
9	Install Basket Seals	2		8	3
10	Install new hot end baskets and tab as needed	3		8	3
11	Install hot and cold end rotor seals to spec	4		8	3
Totals¹		38		11	5,016

Note 1: Actual number of shifts could be lower with work overlap. Man-hours do not include mobilization, de-mobilization, material handling, supervision or local labor factors.

Note 2: Estimate excludes other work such as routine maintenance and other repairs.

Note 3: Manhours are for planning purposes only and are not intended to be used as actual contractor hours.

PRELIMINARY PRODUCTION SCHEDULE

Customer: Intermountain Power Service Corp.
APC Proposal No: 3GS-1034
LAP- 4100

FUNCTION		2003																				2004					
		August				September				October				November				December				January					
week		32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53-1	2	3	4	5
ENGINEERING																											
BUYERS REVIEW																											
PURCHASING																											
RECEIVE MATERIALS																											
MANUFACTURING																											
SHIPPING																											

PLANNED ☐

Milestone Dates:
Order receipt : 8/1/2003
Submit drawings: 9/26/2003
Final ship date: 1/23/2004

Schedule

ALSTOM POWER
Air Preheater Company

5/9/03

IP7_034144